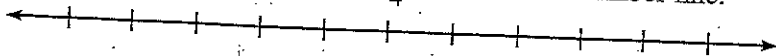


Real Numbers and Expressions

1. Graph the real numbers $-\sqrt{2}$, $-\frac{3}{4}$, and $-\pi$ on a number line.



2. Identify the property or definition that the statement illustrates.

a. $0 + 8 = 8$

b. $(2 + 6) + 3 = 2 + (6 + 3)$

c. $9 \div 3 = 9 \cdot \frac{1}{3}$

d. $5(4 + 3) = 5(4) + 5(3)$

e. $8 - 6 = 8 + (-6)$

3. An elevator descends at the rate of 22 feet per second. What is this rate in miles per hour?

4. What is the value of $-2p - p^2$ when $p = 3$?

A. -15

B. -12

C. -3

D. 3

5. What is the value of $w - (w + 2)^2$ when $w = -5$?

6. Which of the following shows the expression $5(q - 3) + 2(4 - q)$ in simplified form?

A. $3q + 5$

B. $3q - 7$

C. $4q + 5$

D. $4q - 7$

7. The length of a rectangle measures $m + 4$ inches. The width of the rectangle measures $3m - 2$ inches.

a. Write and simplify an expression for the perimeter of the rectangle.

b. How many inches is the perimeter of the rectangle when $m = 6$?

Problem Solving

8. An art teacher buys 20 paint sets for her art class. Each small set costs \$4.50. Each large set costs \$6.00.
- Write and simplify an expression for the total cost of the paint sets if the art teacher buys p small paint sets.

- Find the total cost of the paint sets if 12 of the 20 paint sets are small.

9. A gym charges a one-time membership fee of \$75 in addition to a monthly fee. You join the gym and pay \$435 for a 12-month period.

- Write an equation to find m , the monthly membership fee.

- Solve the equation to find the monthly fee.

10. The table below shows the distance traveled by a San Francisco cable car after making the first stop along its route. Find the total distance the cable car traveled 8 seconds after leaving the first stop.

Time (s), t	0	1	2	3	4
Distance (ft), d	510	524	538	552	566

11. A landscaper has a piece of tubing that is 45 feet long. He cuts it into five pieces. Three of the pieces are the same length. The other two pieces are 3 feet and 5 feet longer than the equal-length pieces.

- Draw a diagram of this situation.

- Write and solve an equation to find the lengths of the 5 pieces.

Linear Equations

12. What is the solution of $8 + 5z = 2(3z - 7)$?

A. -6

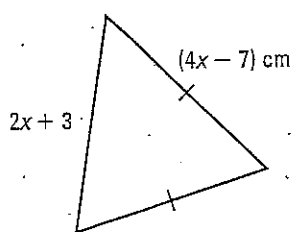
B. 2

C. 15

D. 22

13. Solve the equation $3(5 - 8x) = 15 - 4(6x - 1)$.

14. The triangle below has a perimeter of 64 centimeters.



a. Write an equation representing the perimeter of the triangle in terms of x .

b. Solve the equation for the value of x .

c. What is the length, in centimeters, of the longest side of this triangle?

15. Solve the formula $A = \frac{1}{2}(b_1 + b_2)h$ for h .

A. $h = A - \frac{1}{2}(b_1 + b_2)$

B. $h = \frac{A}{2(b_1 + b_2)}$

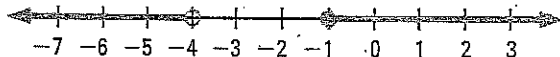
C. $h = \frac{2A}{b_1 + b_2}$

D. $h = 2A(b_1 + b_2)$

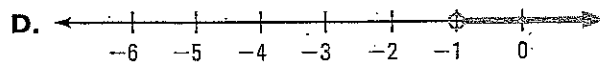
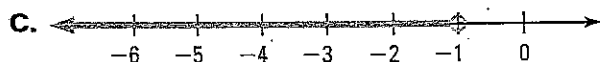
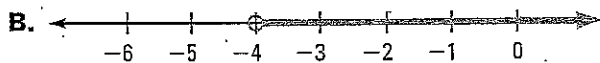
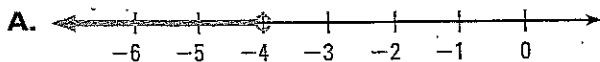
16. Solve the formula $F = \frac{9}{5}C + 32$ for C . Then find the temperature in degrees Celsius when it is 77° Fahrenheit outside.

Inequalities

31. What solution is represented on the line graph below?



32. Which line graph shows the solution to the inequality $3 - 2g > 5$?



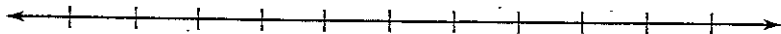
33. What is the solution to the inequality $6 + 2h > h - 2$?

A. $h > -8$ B. $h > -4$ C. $h > 4$ D. $h > 8$

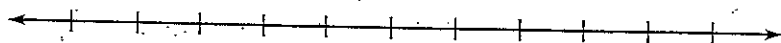
34. You need to score at least an 85 on your next test in order to get an A in the class. Each of the 20 questions on the test is worth the same number of points. Write and solve an inequality to find the number of questions, q , that you should answer correctly to get an A in the class.

For Exercises 35 and 36, solve the inequality. Then graph the solution.

35. $2 \leq 5x - 8 < 27$



36. $4x + 3 < -9$ or $6x - 7 > -1$



For Exercises 40 and 41, solve the absolute value equation.

40. $\left| \frac{1}{2}x - 7 \right| = 5$

41. $|x - 12| = 5x$

42. The recommended daily dosage of a vitamin is between 25 and 35 mg, inclusive. Write an absolute value inequality for this dosage range.